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REMARKS

Claims 2, 5, 8, 11, 14, and 17 have been canceled from the application. Claims 1, 4, 7, 10, 13 and 16 have been amended. Original claims 3, 6, 9, 12, 15 and 18 remain in the application. All of the pending claims stand rejected. No new claims have been added to the application.

Prior Art Rejections

Rejection Under 35 USC 103

Claims 1-18 stand rejected under 35 U.S.C. 103 as being obvious from Braun (U.S. Patent no. 6,451,471) in view of Yamada et al (U.S. Patent no. 6,500,893).

The Braun patent is discussed on pages 4 and 5 of the background portion of the present application as follows:

US Patent No. 6,451,471 to Braun discloses a method of manufacturing a PEMFC current collector plate. The method includes the steps of: providing a current collector plate having land areas on opposing surfaces of the plate, and then removing a layer of the composition from at least one of the land areas. After the layer removal, the new land areas have reduced concentrations of polymer. The layer removal is preferably performed using machining, sanding or surface grinding. The thickness of the layer to be removed must be sufficiently large to remove the areas of high polymer concentration. It may also be desirable to remove an even greater thickness to improve the molding process. The removed layer should be between 0.001 and 0.5 cm thick, and is preferably in the range of 0.015 and 0.06 cm thick. This layer removal is said to result in increased overall conductivity of the molded current collector plate.

The Braun patent states that the "removed layer should be between 0.001 and 0.5 cm [between 10 and 5000 micrometers], and is preferably in the range of 0.015 and 0.06 cm [range of 150 and 600 micrometers] thick." (Col. 3, lines 2-4; Col. 4, lines 45-49). The Braun patent further discloses that the desired reduction in electrical resistance is not achieved until between 0.025 and 0.030 cm have been removed from the surface of the molded plate. (Col. 5, lines 37-45; Figures 3 and 5).

In view of the teachings of the Braun patent, one skilled in the art would not expect that the electrical resistance of a composite current collector plate of a proton exchange membrane fuel cell could be improved by removing a surface layer of no more than 5 microns as recited in amended independent claims 1, 4, 7, 10, 13 and 16 of the present application. Contrary to the teachings of the Braun patent, applicants have found that the desired reduction in resistivity is achieved with the process of the invention by the time 4 micrometers have been removed from the surface of a composite plate comprised of 10 to 50 weight percent

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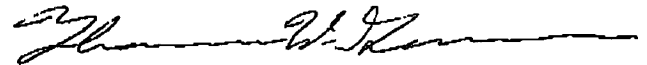
plastic, 10 to 70 weight percent graphite fiber filler and 0 to 80 weight percent graphite powder filler. This is quite a surprising result in view of the contrary teachings of the cited Braun patent.

The Yamada patent has no disclosure suggesting a composite current collector plate of a proton exchange membrane fuel cell could be improved by removing a surface layer of the composite plate. According the invention recited in amended independent claims 1, 4, 7, 10, 13 and 16 is not rendered obvious by the combination to the Braun and Yamada patents.

With the process of the current invention, collector plates can be machined for less time and there is less waste than with the process disclosed in the cited references. In addition, with the process of the present application, it is possible to produce thinner and lighter plates than is the case with the process of the Braun and Yamada patents where much more material must be removed from the surface of the collector plates.

It is believed that the foregoing is a complete response to the subject Office Action. In view of the foregoing, allowance of the above-referenced application is respectfully requested. If any fee is required to authorize or obtain consideration of this response, please charge such fee to Deposit Account No. 04-1928.

Respectfully submitted,



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